

What is claimed is:

1. A system for tracking in real time resource consumption for at least one building comprising:

    a plurality of monitoring devices and metering devices associated with said building resource delivery and utilization structures;

    a data collection and processing device at said building connected to and gathering data from each monitoring device and metering device associated with said building;

    a building management resource system in communication with said data collection and processing device, wherein said communication received from said data collection and processing device determines the resource consumption and resource delivery for said building; and

    a database storing data comprising survey studies of said building, infrastructure data for said building, and current and historical resource consumption for said building, wherein said database is in communication with said data collection and processing device.

2. The system according to claim 1 further comprising a graphical user interface connected to said database, wherein said graphical user interface displays in real time resource infrastructure and resource consumption data for said building.

3. The system according to claim 2 wherein said resource consumption data comprises resource consumption data by meter point or aggregation of meter points and resource consumption data by resource utilization structure.

4. The system according to claim 1 further comprising at least one second data collection and processing device remote from said building and in communication with the data collection and processing device at said building.

5. The system according to claim 4 wherein said data collection and processing device at said building receives input from said second data collection device remote from said building.

6. The system according to claim 5 wherein said data collection and processing device at said building and said second data collection and processing device remote to said building communicate over a network.

7. The system according to claim 1 wherein said data collection and processing device at said building monitors in real time electrical loads for resource delivery, resource utilization structures and mechanical equipment for said building.

8. The system according to claim 7 wherein said data collection and processing device at said building sends an alert message to said building management resource system when at least one of electric loads and environmental conditions are outside operating specifications.

9. The system according to claim 8 wherein said data collection and processing device at said building initiates back up procedures upon sending the alert message.

10. The system according to claim 1 wherein the database comprises a combination of CAD, ODBC, and relational databases.

11. The system according to claim 10 wherein said database comprises resource billing data for said building, building revenue data, resource expenses for said building, critical load data, weather conditions local to said building, infrastructure data for said building, and tenant specific data.

12. The system according to claim 1 further comprising a resource trading platform, wherein said resource trading platform allows for the buying and selling of resources for said building.

13. The system according to claim 12 further comprising geographical research tools, wherein said geographical research tools includes tools for at least one of obtaining resource consumption data on resource usage patterns, average cost of resource per unit volume, and demand for a specific resource based on geographic region.

14. The system according to claim 1 further comprising resource consumption forecasting tools, wherein said forecasting tools includes tools for at least one of forecasting resource usage, forecasting resource demand and forecasting resource costs.

15. The system according to claim 1 wherein the monitoring devices include devices that monitor the security of at least one building.

16. A system for monitoring, gathering, processing, integrating and reporting real time resource consumption, resource delivery, and equipment states for at least one building comprising:

- a plurality of monitoring devices and metering devices associated with said building resource delivery and utilization structures;
- a first data collection and processing device at said building connected to and gathering data from each monitoring device and metering device;
- a database storing data collected from said first data collection and processing device, field surveys of said building, infrastructure data for said building, resource consumption and delivery for said building;

16. a second data collection and processing device remote to said building, said second data collection and processing device in communication with said first data collection and processing device, said database, and said resource delivery and utilization structures of said building; and

a building management resource system in communication with at least one of said data collection and processing devices, wherein said communication received from at least one of said data collection and processing devices control the resource consumption and resource delivery for said building.

17. The system according to claim 16 wherein said first data collection and processing device monitors electrical loads of said building in real time.

18. The system according to claim 17 wherein said second data collection and processing device sends an alert message when electrical loads, as monitored by said first data collection and processing device, are outside operating specifications.

19. The system according to claim 18 wherein said data collection and processing device remote to said building initiates back up procedures upon sending an alert message.

20. The system according to claim 16 wherein said plurality of monitoring devices and metering devices gather resource consumption and resource delivery data in real time.

21. The system according to claim 16 further comprising a plurality of monitoring devices associated with the exterior and interior of said building that receive input on weather conditions local to said building.

22. The system according to claim 16 further comprising a relational database storing infrastructure data of said building, resource consumption data for said building, resource billing data, resource revenue data for said building, resource expenses for the building, and critical load data for said building.

23. The system according to claim 16 wherein said plurality of monitoring devices and metering devices receive input from said remote data collection and processing device and said input determines at least one of resource consumption or resource delivery for said building.

24. The system according to claim 23 wherein the determination of at least one of resource consumption or resource delivery for said building is localized to a defined region within said building.

25. The system according to claim 16 wherein output from the plurality of monitoring devices and metering devices determines at least one of resource consumption or resource delivery for said building.

26. The system according to claim 16 wherein the resource consumption and resource delivery for said building is determined by resource price.

27. The system according to claim 16 further comprising a resource trading platform, wherein said resource trading platform allows for the buying and selling of resources for said building.

28. The system according to claim 27 further comprising geographical research tools, wherein said geographical research tools includes tools for at least one of obtaining resource consumption data on resource usage patterns, average cost of resource per unit volume, and demand for a specific resource based on a selection of buildings in a geographic region.

29. The system according to claim 16 further comprising resource consumption forecasting tools, wherein said forecasting tools includes tools for at least one of forecasting resource usage, forecasting resource demand and forecasting resource costs.

30. The system according to claim 16 wherein the monitoring devices include devices that monitor the security of at least one building.

31. A system for monitoring, gathering, processing, integrating and reporting real time resource consumption, resource delivery and equipment states for at least one building comprising:

a device for receiving and processing resource consumption data for said building and sending data to at least one of a device or building resource management system that controls the resource consumption, resource delivery and equipment states of said building, wherein said device for receiving and processing resource consumption data is remote to said building;

a database storing data comprising survey studies of said building, infrastructure data for said building, current and historical resource consumption for said building, and resource billing data; and

a graphical user interface for displaying in real time resource consumption data for said building.

32. The system according to claim 31 wherein said resource consumption data comprises resource consumption by tenant and resource consumption by resource consuming device.

33. The system according to claim 31 further comprising a second data collection and processing device at said building and in communication with said data collection and processing device remote to said building.

34. The system according to claim 33 wherein said data collection and processing device remote to said building and said second data collection device at said building communicate over a network.

35. The system according to claim 31 wherein said data receiving and processing device sends an alert message when at least one of electrical loads and environmental conditions associated with electrical or mechanical equipment are outside operating specifications.

36. The system according to claim 31 wherein said database comprises a combination of CAD, ODBC, and relational databases.

37. The system according to claim 31 wherein said database comprises building revenue data, resource expenses for said building, critical load data, weather conditions local to said building, and tenant specific data.

38. The system according to claim 31 further comprising a resource trading platform, wherein said resource trading platform allows for the buying and selling for resources for said building.

39. The system according to claim 38 further comprising geographical research tools, wherein said geographical research tools includes tools for at least one of obtaining resource consumption data on resource usage patterns, average cost of resource per unit volume, and demand for a specific resource based on a selection of buildings in a geographic region.

40. The system according to claim 31 further comprising resource consumption forecasting tools, wherein said forecasting tools includes tools for at least one of forecasting resource usage, forecasting resource demand and forecasting resource costs.

41. The system according to claim 31 wherein the monitoring devices include devices that monitor the security of at least one building.

42. A method for monitoring, gathering, processing, integrating and reporting real time resource consumption and delivery and equipment states for at least one building comprising:

acquiring resource consumption, resource delivery, and mechanical equipment data for said building through at least one of monitoring devices and metering devices associated with said building resource delivery and utilization structures;

storing resource consumption, resource delivery, and mechanical equipment data for said building acquired from at least one of said monitoring devices and metering devices;

generating resource consumption bills at least on a metered point or tenant basis; and

determining the resource consumption and resource delivery for said building based on the acquired resource consumption, resource delivery, and mechanical equipment data for said building.

43. The method according to claim 42 further comprising acquiring electrical load data for said building resource delivery and utilization structures and mechanical equipment.

44. The method according to claim 43 further comprising sending an alert message when at least one of electric loads and environmental conditions are outside operating specifications.

45. The method according to claim 42 further comprising acquiring data about weather conditions local to said building.

46. The method according to claim 42 further comprising converting stored resource consumption, resource delivery, and mechanical equipment data for said building into a database comprising CAD, ODBC and relational databases.

47. The method according to claim 42 further comprising providing a graphical user interface, wherein said graphical user interface allows users to access building infrastructure data, resource consumption data, revenue data for said building based on resource consumption, resource expenses for said building, critical load data for said building, field studies conducted for said building, and riser usage for said building.

48. The method according to claim 42 wherein determining the resource consumption and delivery for said building is localized to a defined region or resource utilization structure within said building.

49. The method according to claim 42 further comprising determining the resource consumption and resource delivery for said building based on resource market price.

50. The method according to claim 42 further comprising trading resources with at least one of other buildings or resource service providers.

51. The method according to claim 50 further comprising obtaining at least one of resource consumption data on resource usage patterns, average cost of resource per unit volume, and demand for a specific resource based on geographic region.

52. The method according to claim 42 further comprising at least one of forecasting resource usage, forecasting resource demand and forecasting resource costs.

53. The method according to claim 42 wherein the step of acquiring resource consumption data further comprises monitoring the security of at least one building based on the resource consumption of said at least one building.

54. A computer implemented method for monitoring, gathering, processing, integrating and reporting real time resource consumption and delivery and equipment states for at least one building comprising:

receiving input from at least one data collection and processing device located at said building;

processing input from said data collection and processing device;

sending instructions to set at least one of resource consumption, resource delivery, or mechanical equipment for said building; and

generating resource consumption bills at least on a tenant basis.

55. The computer implemented method according to claim 54 further comprising acquiring electrical load data for said building resource delivery and utilization structures and mechanical equipment.

56. The computer implemented method according to claim 55 further comprising sending an alert message when at least one of electric loads and environmental conditions are outside operating specifications.

57. The computer implemented method according to claim 54 further comprising acquiring data about weather conditions local to said building.

58. The computer implemented method according to claim 54 further comprising converting stored resource consumption, resource delivery, and mechanical equipment data for said building into a database comprising CAD, ODBC and relational databases.

59. The computer implemented method according to claim 54 further comprising providing a graphical user interface, wherein said graphical user interface allows users to access building infrastructure data, resource consumption data, revenue data for said building based on resource consumption, resource expenses for said building, critical load data for said building, field studies conducted for said building, and riser usage for said building.

60. The computer implemented method according to claim 54 wherein determining the resource consumption and delivery for said building is localized to a defined region or resource utilization structure within said building.

61. The computer implemented method according to claim 54 further comprising determining the resource consumption and resource delivery for said building based on resource market price.

62. The computer implemented method according to claim 54 further comprising trading resources with at least one of other buildings or resource service providers.

63. The computer implemented method according to claim 62 further comprising at least one of obtaining resource consumption data on resource usage patterns, average cost of resource per unit volume, and demand for a specific resource based on geographic region.

64. The computer implemented method according to claim 54 further comprising at least one of forecasting resource usage, forecasting resource demand and forecasting resource costs.

65. The computer implemented method according to claim 54 wherein the step of acquiring resource consumption data further comprises monitoring the security of at least one building based on the resource consumption of said at least one building.

66. A system for monitoring and managing resource infrastructure and resource consumption of at least one building in real time, wherein monitoring and management of resource infrastructure and resource consumption is executed through a graphical user interface comprising:

- a region on the graphical user interface that represents building location;
- a region on the graphical user interface that represents load management;
- a region on the graphical user interface that represents electric rent inclusion;
- a region on the graphical user interface that represents power grid identification;
- a region on the graphical user interface that represents revenue profile;
- a region on the graphical user interface that represents resource consumption for common area of said building;
- a region on the graphical user interface that represents meter services; and

wherein said regions are connected to at least one database.

67. The graphical user interface according to claim 66 wherein said regions are displayed in a hierarchical view comprising a tree having a plurality of nodes, so that a

user can navigate to a particular object of the particular file by selecting one of the nodes.

68. The graphical user interface according to claim 67 wherein said graphical user interface is divided into a frame set.

69. The graphical user interface according to claim 68 wherein said regions are individually selectable for displaying in a separate frame of said graphical user interface.

70. The graphical user interface according to claim 68 further comprising a graphical representation of said building infrastructure.

71. The graphical user interface according to claim 70 wherein said graphical representation of said building infrastructure comprises objects or drawings linked to at least one database.

72. The graphical user interface according to claim 68 wherein said objects or drawings depict the power grid of said building.

73. The graphical user interface according to claim 68 wherein said objects or drawings depict the plumbing of said building.

74. The graphical user interface according to claim 68 wherein said objects or drawings depict the mechanical systems of said building.

75. The graphical user interface according to claim 68 wherein said objects or drawings depict the water of said building.

76. The graphical user interface according to claim 68 wherein said objects or drawings depict the HVAC of said building.

77. The graphical user interface according to claim 68 wherein objects or drawings comprise links to elements of said building resource utilization and delivery structures.

78. The graphical user interface according to claim 77 wherein linking to an element generates a data report for the linked element.

79. The graphical user interface according to claim 68 further comprises links to the location of each resource utilization and delivery structure of said building.

80. The graphical user interface of claim 68 wherein said revenue profile is a bar graph depicting resource spending versus resource revenue.

81. The graphical user interface of claim 68 wherein security protocols control access to said graphical user interface.

82. The graphical user interface of claim 81 wherein access to said graphical user interface is provided by a password.

83. The graphical user interface according to claim 66 further comprising a link for providing a tenant of said building with computer access to the tenant's resource consumption data, wherein the tenant can view resource consumption data at a tenant location which is remote from said first data collecting and processing device.

84. The graphical user interface according to claim 66 further comprising a link for providing an owner or management of said building access to resource consumption data for said building.

85. The graphical user interface according to claim 66 further comprising a plurality of links connecting each region of said graphical user interface to individual data elements that constitute a particular region.

86. The graphical user interface according to claim 85 further comprising a plurality of links connecting each region of said graphical user interface to each other region of the graphical user interface.

87. The graphical user interface according to claim 66 further comprising a graphical user interface for providing viewable resource consumption data in a plurality of graphical report forms, wherein said plurality of graphical report forms are configurable by a user.

88. The graphical user interface according to claim 87 wherein the user can configure said graphical reports to display by the user selected date or date range.

89. The graphical user interface according to claim 87 wherein said plurality of graphical report forms include bar graphs, line graphs, spreadsheets, infrared photographs, temperature plots, and a combinations thereof.

90. The graphical user interface according to claim 66 further comprising a region on the graphical user interface that represents at least one building's interior and exterior environmental conditions.

91. The graphical user interface according to claim 66 further comprising a region on the graphical user interface that represents at least one building's security conditions.

92. A computer readable medium for storing program code, when executed, causing a computer to perform a computational method for monitoring, gathering, processing, integrating and reporting in real time resource consumption, resource delivery and equipment states for at least one building comprising:

instructions for acquiring data from a plurality of monitoring devices and metering devices associated with said building resource delivery and utilization structures;

instructions for storing the acquired data;

instructions for acquiring field surveys of said building and infrastructure information of said building;

instructions for generating a display of resource consumption for said building;

instructions for sending input to a building management system of said building; and

instructions for setting said building resource consumption based on acquired data from said plurality of monitoring devices and metering devices.

93. The computer readable medium of claim 90 further comprising instructions for monitoring electrical loads for said building.

94. The computer readable medium of claim 91 further comprising instructions for sending an alert message when at least one of electrical loads and environmental conditions are outside of operating specifications.

95. The computer readable medium of claim 90 further comprising instructions for acquiring data about weather conditions local to said building.

96. The computer readable medium of claim 90 further comprising instructions for generating resource consumption bills for said building.

97. The computer readable medium of claim 90 further comprising instructions for controlling the resource consumption and delivery for said building based on resource price.

98. The computer readable medium of claim 90 wherein instructions for storing acquired data comprises converting said acquired data into a database comprising CAD, ODBC and relational databases.

99. 97. The computer readable medium of claim 90 further comprising instructions for buying and selling resources to and from at least one of other buildings or resource service providers.

100. The computer readable medium of claim 97 further comprising instructions for at least one of obtaining resource consumption data on resource usage patterns, average cost of resource per unit volume, and demand for a specific resource based on geographic region.

101 ~~99~~ The computer readable medium of claim 90 further comprising instructions for forecasting at least one of resource usage, resource demand and resource costs.

102 ~~100~~ The computer readable medium of claim 90 wherein the instructions for acquiring data from a plurality of monitoring devices further comprises instructions for monitoring the security of at least one building based on said at least one building's resource consumption.

103 101. A system for monitoring, gathering, processing, integrating and reporting real time resource consumption, resource delivery and equipment states for at least one building comprising:

a plurality of monitoring devices associated with said building resource delivery and utilization structures;

a plurality of metering devices associated with said building resource delivery and utilization structures;

a first data collection and processing device at said building connected to and gathering data from each monitoring device and metering device associated with said building;

a second data collection and processing device remote to said building for coordinating universal time among all metering devices and gathering data from said first data collection and processing device;

a third data collection and processing device remote to said building for converting field surveys of said building, infrastructure data of said building, and resource consumption of said building into at least one database;

a fourth data collection and processing device remote to said building for manipulating resource data gathered from said second data collection and processing device and converting said data into resource billing data; and

a fifth data collection and processing device connected to said first, second, third, and fourth data collection and processing devices remote to said building for coordinating and integrating all data processed by said first, second, third, and fourth data collection and processing devices into a relational database available in real time.

104 102. The system according to claim 101 wherein the first data collection and processing device monitors electrical loads for said building resource delivery and utilization structures and equipment in real time.

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103. The system according to claim 102 wherein at least one data collection and processing device sends an alert message when at least one of electrical loads and environmental conditions are outside operating specifications.

104. The system according to claim 103 wherein the alert message is sent by said fourth data collection and processing device.

105. The system according to claim 101 wherein the first data collection and processing device receives input from at least one of said second, third, fourth, or fifth data collection and processing device remote to said building.

106. The system according to claim 105 wherein said input is received through a network connection.

107. The system according to claim 106 wherein said network connection is at least one of a LAN or WAN.

108. The system according to claim 101 wherein said plurality of monitoring devices monitor resource consumption and resource delivery in real time.

109. The system according to claim 101 wherein said plurality of metering devices meter resource consumption and resource delivery in real time.

110. The system according to claim 101 further comprising a plurality of monitoring devices associated with the exterior and interior of said building, wherein said plurality of exterior and interior monitoring devices receive input on weather conditions local to said building.

111. The system according to claim 101 wherein said database from said third data collection and processing device is database comprising CAD and ODBC databases.

112. The system according to claim 101 wherein the relational database produced by the fifth data collection and processing device comprises infrastructure data for said building, resource consumption data for said building, resource billing data, resource revenue data for said building, resource expenses for said building, and critical load data.

113. The system according to claim 112 further comprising historical resource consumption data, real time resource data, historic local atmospheric data, resource load profiling data, tenant specific data, tenant lease terms, field studies, field surveys, and riser usage.

114. The system according to claim 101 wherein said plurality of monitoring devices receive input from at least one remote data collection and processing device, wherein said input determines at least one of the resource consumption or resource delivery for said building.

117 115. The system according to claim 114 wherein the determination of at least one of resource consumption or resource delivery for said building is localized to a defined region or resource utilization structure within said building.

118 116. The system according to claim 101 wherein the data gathered from said plurality of monitoring devices determines at least one of resource consumption or resource delivery for said building.

119 117. The system according to claim 101 wherein the resource consumption and resource delivery for said building is determined by resource market price.

120 118. The system according to claim 101 further comprising a resource trading platform, wherein said resource trading platform allows the trading of resources for said building with other buildings or resource service providers.

121 119. The system according to claim 118 further comprising geographical research tools, wherein said geographical research tools includes tools for at least one of obtaining resource consumption data on resource usage patterns, average cost of resource per unit volume, and demand for a specific resource based on a selection of buildings in a geographic region.

122 120. The system according to claim 101 further comprising resource consumption forecasting tools, wherein said forecasting tools includes tools for at least one of forecasting resource usage, forecasting resource demand and forecasting resource costs.

123 121. The system according to claim 101 wherein the monitoring devices include devices that monitor the security of at least one building.

124 122. The system according to claim 101 further comprising a building resource management system, wherein said building resource management system is in communication with at least one data collection and processing device.

125 123. The system according to claim 101 wherein the resource consumption data gathered is used to optimize the utilization of resource driven devices in relation to resource costs and weather conditions local to said building.

126 124. The system according to claim 101 wherein resource consumption, resource delivery and mechanical equipment data for said building are accessed by a remote computer using an Internet web browser.

127 125. The system according to claim 101 wherein communication between said data collecting and processing devices is via TCP/IP.

128 126. The system according to claim 101 further comprising the use of a variety of communication protocols including MODBUS, RS232, RS485, PLC or RF technology, and TCP/IP.

127. The system according to claim 101 wherein the monitoring devices and metering devices are linked to the first data collection and processing device via at least one of MODBUS, RS232, RS485, PLC or RF technology, and TCP/IP communication protocols.

128. The system according to claim 101 wherein the data collected from any one monitoring device or metering device can be isolated and identified with said monitoring device or metering device and is assessable by a remote computer using an Internet web browser.

129. The system according to claim 101 further comprising a graphical user interface for accessing resource consumption data for said building.

130. The system according to claim 101 wherein resource consumption comprises at least one of electrical power consumption, natural gas consumption, water usage, sewer usage, and steam usage.

131. The system according to claim 101 wherein access to the system is controlled by security protocols.

132. The system according to claim 131 further comprising a password protected system wherein passwords control access to data within the system.

133. A system for storing program code, when executed, causing a computer to perform a computational method for monitoring, gathering, processing, integrating and reporting in real time resource consumption, resource delivery and equipment states for at least one building comprising:

means for acquiring data from a plurality of monitoring devices and metering devices associated with said building resource delivery and utilization structures;

means for storing the acquired data;

means for acquiring field surveys of said building and infrastructure information of said building;

means for generating a display of resource consumption for said building;

means for sending input to building management system of said building; and

means for setting said building resource consumption based on acquired data from said plurality of monitoring devices and metering devices.

134. The system according to claim 133 further comprising means for remotely communicating with at least one of said means for acquiring data from a plurality of monitoring devices and metering devices and said building management resource system.

135. The system according to claim 133 further comprising means for monitoring electrical loads for said building.

136. The system according to claim 135 further comprising means for sending an alert message when at least one of electrical loads and environmental conditions are outside of operating specifications.

137. The system according to claim 133 further comprising means for acquiring data about weather conditions local to said building.

138. The system according to claim 133 further comprising means for generating resource consumption bills for said building.

139. The system according to claim 133 further comprising means for controlling the resource consumption and delivery for said building based on resource price.

140. The system according to claim 133 wherein means for storing acquired data comprises converting said acquired data into a database comprising CAD, ODBC and relational databases.

141. The system according to claim 133 further comprising means for buying and selling resources to and from at least one of other buildings or resource service providers.

142. The system according to claim 141 further comprising means for obtaining at least one of resource consumption data on resource usage patterns, average cost of resource per unit volume, and demand for a specific resource based on geographic region.

143. The system according to claim 133 further comprising means for at least one of forecasting resource usage, forecasting resource demand and forecasting resource costs.

144. The system according to claim 133 further comprising means for monitoring the security of at least one building based on said at least one building's resource consumption.